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| 10/767,045   | 01/28/2004  | Wayne A. Loeb        | MP0362                       | 4801             |
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| FISH & RICHARDSON P.C.<br>P.O BOX 1022<br>MINNEAPOLIS, MN 55440-1022 |             |                      | WILLOUGHBY, TERRENCE RONIQUÉ |                  |
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|  |             |                      | 2836                         |                  |

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Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/767,045             | LOEB ET AL.         |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Terrence R. Willoughby | 2836                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-19, 21-67 is/are rejected.
- 7) ☒ Claim(s) 9 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/28/04; 5/31/05</u> .  | 6) <input type="checkbox"/> Other: ____.                                    |

**DETAILED ACTION*****Priority***

1. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. [1] as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed application, Application No. 10/251,302 PAT 6,648,740, which is a CON of 09/908,868 PAT 6,506,104 which is a CON 09/611,246 PAT 6,277,010 which is a DIV 09/368,396 PAT 6,106,378 which is a DIV 08/891,548 PAT 5,964,653 fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. Accordingly, claims 1-67 are not entitled to the benefit of the prior applications.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 23,24,31,37,42,43,50,51,52,59,60,67 are rejected under 35

U.S.C. 102(e) as being anticipated by Denning et al. (US 6,525,611 B1).

Regarding claims 23, Denning et al. discloses a RF power amplifier (Fig. 3,10) comprising: amplifier circuitry operable to amplify an RF input signal and provide an amplified RF output signal (column 3, lines 29-35); peak detection circuitry (Fig. 3,18) operable to monitor the amplified output RF signal and detect when the amplified output signal exceeds a threshold voltage level (abstract, lines 6-12); and a bias network (Fig. 3,20) operable to provide a bias to the amplifier circuitry and shutoff the bias to the amplifier circuitry when the peak detection circuitry detects that the amplified output signal has exceeded the threshold voltage (abstract, lines 8-15; column 2, lines 42-46 and column 3, lines 48-56).

Regarding claims 24 and 37, Denning et al. discloses a RF power amplifier (Fig. 3, 10) of claim 23, wherein the bias network (Fig. 3, 20) is operable to further turn off an output transistor (column 1, lines 54-59) of the

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amplifier circuitry when the peak detection circuitry detects that the amplified output signal has exceeded the threshold voltage level (abstract, lines 8-15).

Regarding claim 31, one would necessarily perform the recited method steps in using the RF power amplifier rejected above in claims 23-24.

Regarding claims 42,43,51,52,59,60, please see the above rejection of claims 23 and 24 in regards to the claimed limitations. It would have been obvious to those skilled in the art at the time the invention was made that the RF power amplifier claimed above was designed to be implemented in a wireless transceiver. Denning teaches that the power amplifier is used in wireless communication applications.

Regarding claim 50, please see the above rejection of claim 42 in regards to the claimed limitations. It would have been obvious to those skilled in the art at the time the invention was made that in wireless technologies, the IEEE standards mentioned in the claim are necessarily met by standard wireless transceivers to enable the transceiver to operate and comply in conjunction with the safety and operational requirements.

Regarding claim 67, please see the above rejection of claim 59 in regards to the claimed limitations. It would have been obvious to those skilled in the art at the time the invention was made that in wireless technologies, the IEEE standards mentioned in the claim are necessarily met by standard transceivers to enable the transceivers to operate and comply in conjunction with the safety and operational requirements.

***Claim Rejections - 35 USC § 103***

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3,7,8,10,12-14,18,19,21,23,25-28,30-42,44-49,51,53-56,58,59, 61-64,66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hietala et al. (US 5,150,075) and in view of Bien (US 6,388,525 B1).

Regarding claims 1 and 12, Hietala et al. discloses the claimed said protection circuit for a radio frequency (RF) power amplifier (Fig. 1, 203; column 1, lines 11-12 and column 4, line 23), the RF power amplifier operable to receive an RF input signal (Fig. 1, 209) and amplify the RF input signal (column 4, lines 25-30), the protection circuit comprising: the control circuitry including ramp circuitry (column 1, lines 1-3). Hietala et al. does not disclose a shunt circuitry or a shunt switch operable to shunt an RF input signal to AC ground and gradually release the RF input signal from AC ground.

However, Bien discloses a variable gain control circuit including shunt circuitry (column 3, lines 6-10) operable to shunt an RF input signal to AC ground (Fig. 1, Zs; column 3, lines 17-20; column 4, line 5), the shunt circuitry including a shunt switch (Fig. 7, M21; column 7, lines 40-43) operable to shunt an RF input signal (column 1, lines 52-55 and column 4, line 5) to AC ground. It would have been obvious to those of ordinary skill in the art at the time the

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invention was made to have combine the power amplifier protection circuit taught by Hietala et al. to the variable gain control circuit of Bien for the purpose of transmitting and receiving extremes signals more reliably without adding excessive noise with the variable attenuation devices built into the amplifier circuit. In such a configuration of the above mentioned combination the shunt switch will gradually release the RF input signal from AC ground for input to an RF amplifier. The shunt switch would be controlled by control circuitry and the ramp circuitry would be operable to control the shunt switch so that the shunt switch gradually releases the RF signal from AC ground for input to an RF amplifier as required by the claim.

Regarding claims 2 and 13, Hietala et al. in view of Bien discloses the claimed said protection circuit of claims 1 and 12 above, wherein an linear region MOSFET (Bien, abstract, line 1; column 7, line 49-51; Fig. 7, M21).

Regarding claims 3 and 14, Hietala et al. in view of Bien discloses the claimed said protection circuit of claims 2 and 13 above, wherein the shunt switch comprises a linear region MOSFET is a NMOS transistor (Bien, abstract, line 1; column 7, line 49; Fig. 7, M21).

Regarding claims 7 and 18, Hietala et al. in view of Bien discloses the claimed said protection circuit of claims 1 and 12 above, further comprising bias shutdown circuitry operable to shut off a bias voltage (Bien, column 7, line 7) or a bias current (Bien, column 7, line 4) being supplied to an output transistor (Bien, Fig. 7, Qo and column 7, line 15-16) of the RF power amplifier (Bien, column 1, lines 52-55 and column 1, line 45).

Regarding claims 8 and 19, Hietala et al. in view of Bien discloses the claimed said protection circuit of claims 7 and 18 above, further comprising peak detection circuitry (Hietala et al., Fig. 2, 211 and abstract, lines 4-10) operable to monitor an output voltage of the RF amplifier and provide a protection signal (Hietala, column 6, lines 10-17) to the shunt circuitry (Bien, column 3, lines 6-10) and the bias shutdown circuitry (Bien, column 7, lines 4-15) when the output voltage of the RF amplifier exceeds a threshold voltage level (Hietala et al., abstract, lines 8-10).

Regarding claims 10 and 21, Hietala et al. in view of Bien discloses the claimed said protection circuit of claims 1 and 12 above, wherein the control circuitry (Hietala et al., column 1, lines 1-3) further includes a delay circuit (Hietala et al., column 6, lines 18-21) operable to delay the ramp control circuitry from gradually releasing the RF input signal from AC ground.

Regarding claim 23, Hietala et al. in view of Bien discloses the claimed said RF power amplifier (Hietala et al., column 1, lines 11-12), comprising: amplifier circuitry operable to amplify an RF input signal and provide an amplified RF output signal (Hietala et al., column 4, lines 23-68 and column 5, lines 1-5); peak detection circuitry (Hietala et al., Fig. 2, 211 and abstract, lines 4-10) operable to monitor the amplified output RF signal and detect when the amplified output signal exceeds a threshold voltage level (Hietala et al., abstract, line 8-10); and a bias network (Bien, column 7, lines 4-15) operable to provide a bias to the amplifier circuitry and shut off the bias to the amplifier circuitry when the peak detection circuitry (Hietala et al., Fig. 2, 211 and abstract, lines 4-10)



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detects that the amplified output signal has exceeded the threshold voltage level.

Regarding claim 25, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 23 above, further comprising shunt circuitry (Bien, column 3, lines 6-10) operable to shunt the RF input signal to AC ground (Bien, Fig. 1, Zs, column 3, lines 17-20 and column 4, line 5) when the peak detection circuitry (Hietala et al., Fig. 2, 211 and abstract, lines 4-10) detects that the amplified output signal has exceeded the threshold voltage level (Hietala, abstract line 8-10).

Regarding claim 26, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 25 above, wherein the shunt circuitry comprises: a shunt switch (Bien, Fig. 7, M21; column 7, lines 40-43) operable to shunt the RF input signal to AC ground and release the RF input signal from AC ground (Bien, Fig. 1, Zs, column 3, lines 17-20 and column 4, line 5), the shunt switch being control by control circuitry including ramp circuitry (Hietala et al., column 1, lines 1-3), the ramp circuitry operable to control the shunt switch so that the shunt switch gradually releases the RF signal from AC ground for input to an RF amplifier.

Regarding claim 27, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 26 above, wherein the shunt switch comprises a linear region MOSFET (Bien, abstract, line 1; column 7, line 49; Fig. 7, M21).

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Regarding claim 28, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 27 above, wherein the linear region MOSFET is an NMOS transistor (Bien, abstract, line 1; column 7, line 49; Fig. 7, M21).

Regarding claim 30, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 26 above, further includes delay circuitry (Hietala et al., column 6, lines 18-21) operable to delay the ramp control circuitry from gradually releasing the RF input signal from AC ground (Hietala et al., column 6, lines 44-47).

Regarding claim 31, Hietala et al. in view of Bien discloses the claimed method for protecting an RF power amplifier from elevated output voltages, the method comprising: detecting (Hietala et al., Fig. 2,211) an output voltage of an RF power amplifier exceeding a threshold voltage level (Hietala et al., abstract, lines 8-10); shutting off bias to an outputs transistor (Bien, column 7, line 4-18) of the RF power amplifier (Bien, column 1, lines 52-55 and column 1, line 45) when the output voltage exceeds the threshold voltage level; and turning off the output transistor of the RF power amplifier when the output voltage exceeds the threshold voltage level (Hietala et al., Fig. 2, 211 and abstract, lines 8-10).

Regarding claim 32, Hietal et al. in view of Bien discloses the claimed said method of claim 31 above, further comprising: shunting an RF input signal (Bien, column 3, lines 6-10) to the RF power amplifier to AC ground (Bien, Fig. 1, Zs; column 3, lines 17-20; column 4, line 5) when the output voltage exceeds the threshold voltage level (Bien, column 7, lines 4-15).

Regarding claim 33, Hietal et al. in view of Bien discloses the claimed said method of claim 32 above, further comprising: supplying bias to the output transistor and turning on the output transistor when the output voltage is reduced to a level below the threshold voltage level.

Regarding claim 34, Hietal et al. in view of Bien discloses the claimed said method of claim 33 above, further comprising: gradually releasing the RF input signal from AC ground when the output voltage is reduced to a level below the threshold voltage level.

Regarding claim 35, Hietal et al. in view of Bien discloses the claimed said method of claim 34 above, further comprising: delaying the gradual release of the RF input signal from AC ground until a time after the output transistor has turned on.

Regarding claim 36, Hietal et al. in view of Bien discloses the claimed said method of claim 32 above, further comprising providing an asymmetrical control that quickly shuts off the power amplifier and gradually turns on the power amplifier at a gradual rate.

Regarding claim 37, Hietal et al. in view of Bien discloses the claimed said protection circuit comprising: means for detecting (Hietala et al., Fig. 2, 211 and abstract, lines 4-10) an output voltage of an RF power amplifier exceeding a threshold voltage level;(Hietala et al., abstract, lines 8-10) means for shutting off bias to an output transistor of the RF power amplifier when the output voltage exceeds the threshold voltage level (Bien, column 7, lines 4-18; and means for

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turning off the output transistor of the RF power amplifier when the output voltage exceeds the threshold voltage level (Bien, column 7, lines 4-18).

Regarding claim 38, Hietala et al. in view of Bien discloses the claimed said protection circuit of claim 37 above, further comprising: means for shunting an RF input signal to the RF power amplifier to AC ground when the output voltage exceeds the threshold voltage level (Bien, Fig. 1, Zs; column 3, lines 17-20; column 4, line 5).

Regarding claim 39, Hietala et al. in view of Bien discloses the claimed said protection circuit of claim 38 above, further comprising: means for supplying bias to the output transistor and means for turning on the output transistor (Bien, column 7, 4-15).

Regarding claim 40, Hietala et al. in view of Bien discloses the claimed said protection circuit of claim 39 above, further comprising: means for gradually releasing (Hietala et al., column 2, lines 10-20) the RF input signal from AC ground when the output voltage is reduced to a level below the threshold voltage level (Hietala et al., abstract, lines 8-10).

Regarding claim 41, Hietala et al. in view of Bien discloses the claimed said protection circuit of claim 40 above, further comprising: means for delaying (Hietala et al., column 6, lines 18-21) the gradual release of the RF input signal from AC ground until a time after the output transistor has turned on.

Regarding claim 42, Hietala et al. in view of Bien discloses the claimed said RF power amplifier (Hietala et al., column 1, lines 11-12) operable to amplify an RF input signal, the RF power amplifier including, amplifier circuitry

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(Hietala et al., Fig. 2) operable to amplify the RF input signal and provide an amplified RF output signal (Hietala et al., column 4, lines 23-68 and column 5, lines 1-5); peak detection circuitry (Hietala et al., Fig. 2, 211 and abstract, lines 4-10) operable to monitor the amplified output RF signal and detect when the amplified output signal exceeds a threshold voltage level; and a bias network (Bien, column 7, lines 4-15) operable to provide a bias to the amplifier circuitry and shut off the bias to the amplifier circuitry when the peak detection circuitry detects (Hietala et al., Fig. 2, 211 and abstract, lines 4-10) that the amplified output signal has exceeded the threshold voltage level.

Regarding claim 44, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 42 above, further comprises shunt circuitry (Bien, column 3, lines 6-10) operable to shunt the RF input signal to AC ground (Bien, Fig. 1, Zs; column 3, lines 17-20; column 4, line 5) when the peak detection circuitry (Hietala et al., Fig. 2, 211 and abstract, lines 4-10) detects that the amplified output signal has exceeded the threshold voltage level (Bien, column 7, lines 4-15).

Regarding claim 45, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 44 above, wherein the shunt circuitry (Bien, column 3, lines 6-10) comprises: a shunt switch (Bien, Fig. 7, M21; column 7, lines 40-43) operable to shunt the RF input signal to from AC ground (Bien, Fig. 1, Zs and column 3, lines 17-20), the AC ground and release the RF input signal shunt switch being controlled by control circuitry; and the control circuitry including ramp circuitry (Hietala, column 1, lines 1-3), the ramp circuitry operable

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to control the shunt switch so that the shunt switch gradually releases the RF signal from AC ground for input to an RF amplifier.

Regarding claim 46, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 45 above, wherein the shunt switch comprises a linear region MOSFET (Bien, abstract, line 1; column 7, line 49; Fig.7, M21).

Regarding claim 47, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 46 above, wherein the linear region MOSFET is an NMOS transistor (Bien, abstract, line 1; column 7, line 49; Fig. 7, M21).

Regarding claim 49, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 45 above, wherein the control circuitry (Hietala et al., column 1, lines 1-3) further includes delay circuitry (Hietala et al., column 6, lines 18-21) operable to delay the ramp control circuitry from gradually releasing the RF input signal from AC ground.

Regarding claims 42, 44-47, 49, it would be obvious to those skilled in the art at the time the invention was made that the RF power amplifier claimed above was designed to be implemented in a wireless transceiver as both references teach the use of power amplifiers in radio telecommunication systems.

Regarding claim 51, Hietala et al. in view of Bien discloses the claimed said RF power amplifier, comprising: amplifying means (Hietala et al., column 1, lines 11-12) for amplifying an RF input signal and providing an amplified RF output signal (Hietala et al., column 4, lines 23-68 and column 5, lines 1-5); detecting means (Hietala et al., Fig. 2, 211 and abstract, lines 4-10) for

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monitoring the amplified output RF signal and detecting when the amplified output signal exceeds a threshold voltage level; and biasing means (Bien, column 7, lines 4-15) for providing a bias means and shutting off the bias to the amplifying means when the detecting means (Hietala et al., Fig. 2, 211 abstract, lines 4-10) detects that the amplified output signal has exceeded the threshold voltage level.

Regarding claim 53, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 51 above, further comprising shunting means (Bien, column 3, lines 6-10) for shunting the RF input signal to AC ground (Bien, column 7, lines 40-43) when the detecting means (Hietala et al., Fig. 2, 211 and abstract, lines 4-10) detects that the amplified output signal has exceeded the threshold voltage level.

Regarding claim 54, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 53 above, wherein the shunting means (Bien, column 1, lines 52-55) comprises: switching means for shunting the RF input signal to AC ground (Bien, Fig. 1, Zs; column 3, lines 17-20 and column 4, line 5) and releasing the RF input signal from AC ground, the switching means (Bien, Fig. 7, M21; column 7, lines 40-43) being controlled by control circuitry; and the control circuitry (Hietala et al., column 1, lines 1-3) including ramping means for controlling the switching means so that the switching means gradually releases the RF signal from AC ground for input to an RF amplifier.

Regarding claim 55, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 54 above, wherein the switching means

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comprises a linear region MOSFET (Bien, abstract, line 1; column 7, line 49; Fig. 7, M21).

Regarding claim 56, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 55 above, wherein the linear region MOSFET is an NMOS transistor (Bien, abstract, line 1; column 7, line 49; Fig. 7, M21).

Regarding claim 58, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 54 above, wherein the control circuitry (Hietala et al., column 1, lines 1-3) further includes delaying means (Hietala et al., column 6, lines 18-21) for delaying the ramping means from gradually releasing the RF input signal from AC ground (Hietala et al., column 6, lines 44-47).

Regarding claim 59, Hietala et al. in view of Bien discloses the claimed said RF power amplifier operable to amplify an RF input signal, the RF power amplifier including, amplifying means (Hietala et al., column 1, lines 11-12) for amplifying an RF input signal and provide an amplified RF output signal (Hietala et al., column 4, lines 23-68 and column 5, lines 1-5); detecting means (Hietala et al., Fig. 2, 211 and abstract, lines 4-10) for monitoring the amplified output RF signal and detecting when the amplified output signal exceeds a threshold voltage level; and biasing means (Bien, column 7, lines 4-15) for providing a bias means and shutting off the bias to the amplifying means when the detecting means (Hietala et al., Fig. 2, 211 abstract, lines 4-10) detects that the amplified output signal has exceeded the threshold voltage level.

Regarding claim 61, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 59 above, further comprising shunting means



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(Bien, column 3, lines 6-10) for shunting the RF input signal to AC ground (Bien, column 7, lines 40-43) when the detecting means (Hietala et al., Fig. 2, 211 and abstract, lines 4-10) detects that the amplified output signal has exceeded the threshold voltage level.

Regarding claim 62, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 61 above, wherein the shunting means (Bien, column 1, lines 52-55) comprises: switching means for shunting the RF input signal to AC ground (Bien, Fig. 1, Zs; column 3, lines 17-20 and column 4, line 5) and releasing the RF input signal from AC ground, the switching means (Bien, Fig. 7, M21; column 7, lines 40-43) being controlled by control circuitry; and the control circuitry (Hietala et al., column 1, lines 1-3) including ramping means for controlling the switching means so that the switching means gradually releases the RF signal from AC ground for input to an RF amplifier.

Regarding claim 63, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 62 above, wherein the switching means comprises a linear region MOSFET (Bien, abstract, line 1; column 7, line 49; Fig. 7, M21).

Regarding claim 64, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 63 above, wherein the linear region MOSFET is an NMOS transistor (Bien, abstract, line 1; column 7, line 49; Fig. 7, M21).

Regarding claim 66, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 62 above, wherein the control circuitry (Hietala et al., column 1, lines 1-3) further includes delaying means (Hietala et al.,

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column 6, lines 18-21) for delaying the ramping means from gradually releasing the RF input signal from AC ground (Hietala et al., column 6, lines 44-47).

Regarding claims 59-66, it would be obvious to those skilled in the art at the time the invention was made that the RF power amplifier claimed above was designed to be implemented in a wireless transceiver.

5. Claims, 4-6, 11, 15-17, 22, 29, 48, 57, 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hietala et al. (US 5,150,075) and in view of Bien (US 6,388,525) and in further view of Macphail et al. (US 6,603,335).

Regarding claims 4 and 15, Hietala et al. in view of Bien discloses the claimed said protection circuit of claims 1 and 12 above, comprising a ramp circuit, however they both do not disclose an RC network.

However, Macphail et al. discloses a ramp circuit for a power amplifier (Fig. 1) that includes a RC network (column 3, lines 50-60). It would have been obvious to those skilled in the art at the time the invention was made to have modified the ramping circuit of Hietala et al. and Bien by providing a RC network taught by Macphail et al. for controlling the output of the power amplifier by ramping up the amplifier output power to its proper frequency therefore to transmit the desired data at the output power level, and ramping down its power amplifier so as not to disturb or interfere with the other cellular telephone users sharing the same frequency or wireless channels.

Regarding claims 5 and 16, Hietala et al. in view of Bien and further view of Macphail et al. discloses the claimed said protection circuit of claims 4 and 15 above, wherein the shunt switch (Bien, Fig. 7, M21; column 7, lines 40-43)

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gradually releases the RF signal from AC ground exponentially (Maephail et al., column 4, lines 15-17). It would have been obvious to those skilled in the art at the time of the invention was made that the normal operation of any device connected to a ramp circuit that includes an RC network wherein the shunt switch will gradually release the RF signal from AC ground exponentially.

Regarding claims 6 and 17, Hietala et al. in view of Bien and further view of Macphail et al. discloses the claimed said protection circuit of claims 4 and 15 above, wherein the ramp circuitry releases in accordance with a discharge of a capacitor in the RC network (Machphail, column 5, lines 24-26).

Regarding claims 11 and 22, Hietala et al. in view of Bien and further view of Macphail et al. discloses the protection circuit of claims 10 and 21 above, wherein the delay circuitry includes an RC network (Machphail, column 1, lines 62-64; column 2, lines 49-51).

Regarding claim 29, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 26 above, including a ramp circuitry, however they both do not disclose a RC network.

However, Macphail et al. discloses a ramp circuit for a power amplifier (Fig. 1) that includes a RC network (column 2, lines 49-51 and column 3, lines 50-60). It would have been obvious to those skilled in the art at the time the invention was made to have modified the ramp circuitry of Hietala et al. and Bien by providing a RC network taught by Macphail et al. for controlling the output of the power amplifier by ramping up the amplifier output power to its proper frequency therefore to transmit the desired data at the output power level and

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ramping down its power amplifier so as not to disturb or interfere with the other cellular telephone users sharing the same frequency or wireless channels.

Regarding claim 48, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 45 above, with a ramp circuitry, however they both do not disclose a RC network.

However, Macphail et al. discloses a ramp circuit for a power amplifier (Fig. 1) that includes a RC network (column 2, lines 49-51 and column 3, lines 50-60). It would have been obvious to those skilled in the art at the time the invention was made to have modified the ramp circuitry of Hietala et al. and Bien by providing a RC network taught by Macphail et al. for controlling the output of the power amplifier by ramping up the amplifier output power to its proper frequency there to transmit the desired data at the output power level and ramping down its power amplifier so as not to disturb or interfere with the other cellular telephone users sharing the same frequency or wireless channels.

Regarding claim 48, it would be obvious to those skilled in the art at the time the invention was made that the RF power amplifier claimed above was designed to be implemented in a wireless transceiver.

Regarding claim 57, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 54 above, with a ramping means, however they both do not disclose a RC network.

However, Macphail et al. discloses a ramp circuit for a power amplifier (Fig. 1) that includes a RC network (column 2, lines 49-51 and column 3, lines 50-60). It would have been obvious to those skilled in the art at the time the

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invention was made to have modified the ramp circuitry of Hietala et al. and Bien by providing a RC network taught by Macphail et al. for controlling the output of the power amplifier by ramping up the amplifier output power to its proper frequency therefore to transmit the desired data at the output power level and ramping down its power amplifier so as not to disturb or interfere with the other cellular telephone users sharing the same frequency or wireless channels.

Regarding claim 65, Hietala et al. in view of Bien discloses the claimed said RF power amplifier of claim 62 above, including a ramp circuitry, however they both do not disclose a RC network.

However, Macphail et al. discloses a ramp circuit for a power amplifier (Fig. 1) that includes a RC network (column 2, lines 49-51 and column 3, lines 50-60). It would have been obvious to those skilled in the art at the time the invention was made to have modified the ramp circuitry of Hietala et al. and Bien by providing a RC network taught by Macphail et al. for controlling the output of the power amplifier by ramping up the amplifier output power to its proper frequency therefore to transmit the desired data at the output power level and ramping down its power amplifier so as not to disturb or interfere with the other cellular telephone users sharing the same frequency or wireless channels.

***Allowable Subject Matter***

6. Claims 9 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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The following is a statement of reasons for the indication of allowable subject matter: Combined claim 9 and 20 would be allowable over the art of record because the prior art does not teach a programmable peak detection circuit as set forth in the claimed invention.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Black et al. (US 6,169,886 B1) discloses a power amplifier of communication devices, to facilitating control of such power amplifiers according to a delayed waveform. Arnott (US 2003/0045251 A1) discloses a power amplifier overload protection, upon detection of an overload, steps are taken to shunt the RF drive or reduce bias at one or more preceding stages of the amplifier to limit the excessive voltage or current in the output stage.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrence R. Willoughby whose telephone number is 571-272-2725. The examiner can normally be reached on 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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TRW



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